

to be considered as a useful remedy in certain cases, and is also used, like the *Amanita* of the Kamtschadales, to produce a certain amount of jollification. Dr. Bennett describes a symposium of this kind in the island of Tongatabu; and from his account of the preliminary operations, in which a general chewing of the Kava was performed by the company *before* its infusion with water to make the cheering beverage, it would appear to be necessary that the partakers of this entertainment should possess almost as little squeamishness as the inferior classes of Kamtschadales.

We must now conclude our notice of Dr. Bennett's 'Gatherings.' We trust that we have said sufficient to indicate that his volume contains much valuable and interesting matter. Although the style in which it is written is somewhat discursive, the general performance of the work is satisfactory, and it may be perused with much advantage both by the general reader and the scientific naturalist. The illustrations consist of several plates, some of them coloured, representing the more interesting of the objects referred to, and of numerous woodcuts scattered through the text.

*The Honey-Bee; its Natural History, Habits, Anatomy, and Microscopical Beauties.* By JAMES SAMUELSON, assisted by J. BRAXTON HICKS, M.D., F.L.S. With tinted Illustrations. 12mo. London, Van Voorst, 1860.

Under the title of 'Humble Creatures,' Mr. Samuelson appears to propose bringing before the public a series of notices of the structure and habits of some of the lower animals; and the present volume is the second effort he has made towards the accomplishment of this design. His object, as explained by himself, is to show, from the minute examination of some of those creatures which are usually regarded as insignificant or even contemptible by the world at large, how even these have been cared for by the Creator, how beautifully their structure is adapted to all the purposes which they are intended to fulfil in Nature, and how important they may be in the œconomy of the world. Towards the attainment of this laudable object he made a first essay some years ago, when he published the histories of "The Earthworm and the Housefly," and we are glad to see, by an advertisement in his new volume, that its predecessor has met with sufficient success to justify the production of a second edition. In selecting the Honey-Bee for his second essay, he has perhaps, departed a little from the precise line which he might have been expected to follow; as the Bee is certainly not one of those "humble creatures" which are regarded with contempt or considered unimportant by even the most superficial; and so much has been written upon this insect and its wonderful instincts, that most people would be ready to admit its history to be a subject of interest. However, it is probably the general interest taken in the Bee that has induced our author to make it the subject of his present volume; and, considering the new and remarkable facts which have lately been discovered in the history of this insect, and which have scarcely yet

found their way into popular works, we cannot blame him for his choice.

Mr. Samuelson's treatise on the Honey-Bee may be regarded as a popular Monograph of that insect; that is to say, he not only describes its external appearance and general habits, but enters minutely into its anatomy and physiology, discussing its instincts and various operations at considerable length. With the assistance of the figures, most of which are good, the reader may investigate the whole structure, internal and external, of the Bee, and thus gain a better general knowledge of the machinery by which the functions of insect life are performed than could be obtained by the same amount of labour in any other way. The structure of the eyes, antennæ, and oral organs, of the legs and wings, and of the segments of the body, is clearly described; and as the functions of each part are referred to *en passant*, these details are relieved from that *dryness* which might otherwise accompany a purely anatomical description. We have, however noticed one or two slight errors and omissions in this Part, to which we may call attention. Thus, at page 9, Mr. Samuelson seems to intimate that each of the maxillæ is employed as a separate "trowel-shaped blade" in plastering and moulding the wax; which, we think, is hardly the case, any more than that they are employed as a pair of scissors for clipping the thin wax of the cells, as would seem to be implied by statements on pp. 36 and 37. The use of the mandibles in working the wax does not appear to be referred to, although, as far as our recollection serves, these are important organs in the architectural operations of the Bee. In describing the differences between the Drones and the two kinds of female Bees, our author has omitted all mention of the additional joint in the antennæ of the former, nor do we find this referred to in his description of the antennæ. From the large size of the eyes in the Drones, Mr. Samuelson argues (p. 28) that we must suppose them to have some duty to perform in the hive; but we think that, considering the number of cases in which a similar excessive development of the visual organs occurs in the males of Insects, although we cannot see the reason for it, this argument of design will hardly hold, and the "male sex" of the Honey-Bee must submit contentedly to the charge of being "of no use in the house," which is often brought by their partners against males far higher in the scale of organization.

Mr. Samuelson's account of the mode of formation of the comb is of course founded to a great extent upon the labours of his predecessors, and contains nothing new; it is, however, well put together, and will prove interesting to the reader. In treating of the cause of the hexagonal form of the cells, our author inclines to the theory that this form is produced in consequence of the mechanical conditions under which the cells are built, as opposed to the assumption either of a special instinct prompting the workers to make hexagonal cells, or of some condition in the structure of the Bees which renders this form the necessary result of their labours. In this view he is no doubt correct, as the principal evidence certainly tends to show that the hexagonal form of the cells is caused by a process analogous

to that by which numerous contiguous and equally expanding cylinders acquire this configuration; and we must therefore submit with a good grace to give up this as an example of instinct in the Bee. There is, however, a striking exercise of instinct in the construction of the comb, which we are sorry to see that Mr. Samuelson has entirely omitted to mention, namely the alternate arrangement of the cells on the two sides of the comb, by which, as is well known, a considerable economy of space and material is realized. This is a serious omission in a work devoted to the history of the Honey-Bee.

Notwithstanding the defects to which we have alluded, and one or two others of minor importance, Mr. Samuelson has succeeded in producing a valuable contribution to our popular entomological literature, and one which we can safely recommend. He has concluded it most appropriately with two chapters on instinct; but to these we cannot allude, further than to say that they contain a good *résumé* of the subject. The plates illustrating the description of the Bee are well executed, on tinted paper, and will materially assist the unlearned reader in understanding the anatomical details.

*Actinologia Britannica: a History of the British Sea-Anemones and Madrepores.* By P. H. Gosse, F.R.S. London, Van Voorst, 1858-60.

[Second Notice.]

It is just two years since we called our readers' attention to the appearance of the first parts of this valuable work; and it is with much pleasure that we now announce its completion. There are but few books on the Natural History of these Islands that can in any way compare with Mr. Gosse's '*Actinologia Britannica*,' whether we regard the evident care and conscientiousness with which it has been got up or the elegance of the illustrations.

In our previous notice we remarked upon the great strides which have been made in the knowledge of our Helianthoid Polypes within the last few years, mainly in consequence of the strong taste for aquaria, to which Mr. Gosse has most zealously lent a helping hand. A careful comparison of the book now before us with the other standard work on the subject, namely Johnston's '*British Zoophytes*,' shows clearly how greatly we are indebted to our author for the progress that has been made in this branch of zoology. In Johnston's volume we find descriptions of thirty-two Sea-Anemones and Corals; Mr. Gosse describes nearly double that number, namely sixty-three, whilst five others are indicated as imperfectly described by other authors, or as doubtful species, and six more, only one of which was known to Johnston, are placed in an appendix as *species incertæ sedis*. If these doubtful species be hereafter established, the number of British Helianthoida will be raised to seventy-four. On further examination it appears that in all eleven of Johnston's species have disappeared from the list, being placed either as synonyms of others or as doubtful species; so that the number of species described as British by Johnston which still retain their full specific rank amounts to only twenty-one. We thus get an addition of forty-two species